

Arrangement for mixing and/or processing video signals.

Description

BACKGROUND OF THE INVENTION

Field of the invention **BACKGROUND OF THE INVENTION**

The invention relates to an arrangement for mixing and/or processing one

or more video signals.

Dedicated hardware components are provided in such prior-art arrangements for the various uses of such arrangements. This renders the use of such arrangements inflexible.

SUMMARY OF THE INVENTION

It is an object of the invention to further improve an arrangement of the type described in the opening paragraph, allowing a more flexible and more versatile use.

According to the invention, this object is solved in that the arrangement comprises video hardware components which are implemented for a dedicated purpose and, within the arrangement, are exclusively usable for this dedicated purpose, in that the arrangement ^{further} comprises video computers which can alternatively perform a plurality of functions and are thus usable within the arrangement for different purposes, dependent on their need, the video hardware components being implemented for uses which are computer-intensive and/or require a large bandwidth, the video computers being provided for uses which can be processed in real time by the video computers, the arrangement accommodating a control circuit which assigns tasks to the video computers, dependent on their need.

The arrangement comprises elements of two different categories. The first category includes video hardware components which are implemented for a fixed purpose and can exclusively be used for this purpose. These video hardware components are provided for uses which can hardly be fulfilled by other components, namely, particularly those uses which are computer-intensive or require a large bandwidth. For such purposes, dedicated video hardware components can be advantageously used as before.

The arrangement further comprises elements of a second category, namely, video computers which can alternatively perform a plurality of functions. The video computers are provided for those purposes which can be processed by them in real time, i.e., it must be possible to process a video signal in real time and in the desired manner. The video computers may be usable within the arrangement, dependent on their need, for different purposes. Thus, not every use requires its own element, but rather one or more video computers may be alternatively used for different purposes.

The arrangement further comprises a control circuit which assigns a corresponding function to the video computers, dependent on the need. This function may be changed any time so that a switch or modification of the function of the arrangement is possible within a short time.

5 This implementation of the arrangement makes it flexible, i.e. dependent on the purpose for which it is to be used, it can process video signals in different ways. This is particularly achieved by the flexible use of the video computers.

The variable use of the video computers, particularly when their functions are software-controlled, allows additional and/or new functions to be realized any time, because only the software is to be changed for this purpose. ~~As defined in claim 2~~ ^{The} the video hardware components may be advantageously implemented as video mixer stages or video crossbars.

The flexibility of the possible use of the video computers for different purposes can be advantageously achieved in that, ~~as defined in claim 3~~, the desired function of the video computers can be activated by software which is loadable in dependence upon the need.

This software may render the video computers suitable, for example, for such uses as chromakey, lumakey or trick effects, ~~as defined in claim 4~~.

Within the arrangement, the video hardware components and the video computers are advantageously coupled by means of a connection which can handle a sufficiently large quantity of data. ~~In accordance with further advantageous embodiment as defined in claims 5 and 6~~, ^A a wideband bus system or a video crossbar can be used advantageously.

Particularly when the variable functions of the video computers are activated by means of software, the software computers may advantageously comprise standard processors, ~~as defined in claim 7~~. Even a standard computer built on a board may be used, which renders the arrangement particularly economic.

A further embodiment of the invention, ~~defined in claim 8~~, utilizes the possible flexible use of the video computers for a combined use of a plurality of arrangements for mixing or processing one or more video signals. For such a combined use, at least one video computer of at least one of the arrangements may be variably used not only as regards its own purpose of use, but also as regards its purpose of use in one of the two arrangements, i.e. the video computer can be assigned to the one or the other arrangement, as the case may be, and fulfil a function, dependent on the need, in this

arrangement. This is also possible for more video computers so that, basically, the video computers can be used variably in one or more arrangements of a plurality of coupled arrangements. This further enhances the flexibility of use of the arrangements.

These and other aspects of the invention are apparent from and will be
5 elucidated with reference to the embodiments described hereinafter.

In the drawing:

the sole Figure is a block diagram of an arrangement 1 for mixing and/or
10 processing one or more video signals.

The arrangement 1 accommodates video hardware components 2. The video hardware components are implemented for a fixed use and can exclusively perform the assigned use within the arrangement 1. Particularly, those functions are concerned which can be performed with difficulty by means of computers, namely, computer-intensive or
15 bandwidth-intensive tasks. This may also concern, for example, the mixing of a plurality of video signals. The video hardware components 2 can thus realize particularly video mixer stages or video crossbars.

The arrangement 1 further accommodates video computers 3 and 4. In contrast to the hardware components 2, the video computers 3 and 4 can be used in variable ways. They can fulfil different purposes of use. The video computers 3 and 4 may be controlled, for example, by software which can be loaded, dependent on their need, i.e., they may perform different functions, dependent on the loaded software. On the one hand, their function is thereby individually changeable, dependent on the need, and, on the other hand, modifications of the functions can be realized by means of modified software, or new
25 functions can be realized by means of new software.

The arrangement 1 comprises a wideband bus 5 by means of which the video hardware components 2 and the video computers 3 and 4 are coupled. The video data can be transmitted in an unprocessed or a processed form via this wideband bus 5.

The arrangement 1 also comprises a control circuit 6 which is provided to
30 assign the relevant desired function, dependent on the need, to the video computers 3 and 4. For example, the control circuit 6 may trigger the loading of the software in the video computers 3 and 4 required in dependence upon the desired function.

Due to the variable functions of the video computers 3 and 4, such an arrangement 1 can be flexibly used and also adapted any time to new desired functions by

means of modified software.

These advantages of the arrangement 1 shown in the Figure can even be enhanced in a combined use of two or more arrangements 1.

In this case, a plurality of arrangements corresponding to arrangement 1 in the Figure ^{are} is coupled via the wideband bus 5 in a way which is not shown in the Figure.

In this case, at least one of the video computers, for example the video computer 4 of the arrangement 1 shown in the Figure, can be advantageously used in a variable manner either in the one arrangement or in the other arrangement. Fewer video computers are thereby required within an arrangement because, dependent on their need, they may be assigned to either the one arrangement 1 or the other arrangement for processing video signals.

Regarding the arrangement 1 shown in the Figure, this means that, for example, the video computers 4 may also be used in another arrangement which is not shown in the Figure.

Conversely, video computers arranged in an arrangement not shown in the Figure and coupled to the arrangement 1 of Fig. 1 by means of the wideband bus 5 may also be used in the arrangement 1 shown in the Figure.

The video computers 3 and 4 may be advantageously used particularly for those tasks which can be processed in real time by means of computers. These may be, for example, chromakey, lumakey or trick effects.

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